

Ad hoc Expert Meeting on

**CREATIVE ECONOMY AND SUSTAINABLE
DEVELOPMENT**

28 October 2019

**Small Island Developing States and the
Fourth Industrial Revolution**

by

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Small Island Developing States and the Fourth Industrial Revolution

Global trade and industry is going through one of the most significant changes since the Renaissance. In the world's advanced economies, the old industrial model is being superseded by a new one based on creativity, knowledge and digital platforms. In place of the natural resource intensive, large-scale manufacturing industries that powered the Twentieth Century, economic growth today increasingly turns on creative innovation, technology and talent.

This is not the marketing spin of technology companies or the predictions of commentators and journalists. The global market provides the simplest and most dramatic way of showing this revolution - through the way it values businesses. The table below shows how the list of worlds five most valuable companies have changed since the start of this decade.¹

Top 5 Fortune 500 businesses by market capitalisation in 2010

1. Exxon Mobil – Oil / energy
2. Walmart - Retail
3. Chevron Corp – Oil / energy
4. Conoco Phillips – Oil / energy
5. General Motors – Auto

Top 5 Fortune 500 businesses by market capitalisation in 2019

1. Amazon – Digital Technology
2. Microsoft – Digital Technology
3. Google Alphabet – Digital Technology
4. Apple – Digital Technology
5. Berkshire Hathaway – Finance

Facebook recently dropped out of the top 5, coming in now at number 6, but in 2018 all top five companies by market capitalisation were digital based.

That seismic shift has remarkably taken just over eight years. The speed of industrial change is accelerating and there is seemingly no terminal velocity to this change. It has revolutionised retail and advertising, healthcare, finance, manufacturing, and education. It's also had a truly transformational impact on the cultural and creative industries.

For content producers, production costs have fallen, distribution has become truly ubiquitous and new technologies have opened up previously unthinkable applications. The creative industries have gone from cottage industry to global economic powerhouse.

¹ <http://fortune.com/fortune500/>

The UK for example has a global reputation as a leader in the creative industries with the world's third most valuable creative sector - behind the USA and China. In 2017, £100 billion was added to the UK's economy thanks to the creative industries.²

That's four times the GVA of the automotive industry, six times as much as life sciences and nearly ten times that of aerospace. The creative economy, in all its forms, has become the leading edge of economic development, growth and change.

The power behind that rise of the creative industries has been the Third and now Fourth Industrial Revolutions.

There is a problem though here.

Research, development, discussion and practical implementation of the creative economy and 4IR is almost exclusively focussed on developed countries and whilst these innovations are seen as universally positive, the combination of creative economy growth and digital technology innovation is actually creating increased inequality between nations and regions.

The United Nations' International Labour Organisation³ has revealed that more than half of workers in Cambodia, Indonesia, Thailand, Vietnam, and the Philippines - at least 137 million people - risk losing their jobs to automation in the next two decades. It's being predicted that the rise of automated manufacturing in Southeast Asia is likely to fuel modern slavery as workers who end up unemployed due to automation face abuses competing for a shrinking pool of low-paid jobs in a "race to the bottom".

The outcome of this is most probably to cause a major relocation of production close to the main home markets, as automation becomes the main driver in business competitiveness - not cheap labour. The rapidly falling costs of advanced automation has also been lowering the demand of labour content in production. The demand for human labour even in small batch production is losing the comparative advantage to technology.⁴

As a result, as opposed to off-shoring, a reverse trend is surfacing. For example, Casio Computer company is taking its Thailand operation of watch assembling back home; Honda Motor will shift production of its mainstay Super Cub motorcycle from China to its Kumamoto Factory; Canon will be building a new digital camera plant in Miyazaki Prefecture to bring back production from Asian locations; Pioneer has moved production of car navigation systems destined for the Japanese market from a Thai plant to Aomori Prefecture. In many of these production plants with 4IR technology stack, the labour requirement has fallen as much as 75 per cent.⁵ As opposed to requiring four workers in offshore plants, only one person is needed in planned onshore operations.

Whilst SIDS are not subject to the off-shoring of production by major corporations, the global shift in production, trade and employment presents real and significant challenges that impact on an increasingly volatile global market.

² Department of Culture Media and Sport, 2018

³ Research Department Working Paper n°36. Robots worldwide: The impact of automation on employment and trade. 2018

⁴ Kazmer, David. (2014). Manufacturing outsourcing, onshoring, and global equilibrium. Business Horizons. 57. 10.1016/j.bushor.2014.03.005.

⁵ World Economic Forum, Future of Jobs Report, 2018

We saw what the impact of the financial crash of 2008 did to global luxury travel⁶ and we must not underestimate the effects on tourism of social and cultural upheaval caused by rising inequality, social and political polarisation and environmental change. All these factors play on the delicate nature of tourist decision making.

For many SIDS that rely primarily on tourism as the major employer and contributor to GDP, that increasing volatility is a major cause for concern.

But the dire predictions around the negative impact of 4IR hides the positives that developing countries can derive from these new technologies of production and consumption. The new industries and opportunities of 4IR can offset the impacts of that volatility.

For Small Island Developing States in particular, the Fourth Industrial Revolution could have a truly positive transformative effect – especially if we look at how these economies could join the Creative Industries Revolution. It's going to take something of a shift in thinking though.

Creative Clusters as Ecosystem Orchestrators

It's important to recognise that SIDS have been somewhat disregarded as having viable creative economies, the primacy of the Blue Economy unfortunately stifling any real research or development in creative sectors.

There has been a long-held correlation between successful creative economies and the level of urbanisation in a country or region.⁷ The clustering of people, the cosmopolitan society and the level of infrastructure, have all made large urban areas the perceived natural home for creativity, innovation and strong cultural economies.

However, that assumption then tends to disregard the potential for dispersed populations and small states to build strong creative economies. Many SIDS have struggled to develop economies with breadth, the reliance of the Blue Economy being all consuming, and this is natural. Geographical limitations can make service delivery difficult, it can limit the opportunities for education and youth employment and compound the effects of small island states to grow high skill, high wage, creative and innovative working populations.

Many SIDS also struggle to balance this need for creative infrastructural investment with crippling levels of national debt.⁸ There is also a reliance on public sector jobs – sometimes upwards of 40% of the total working population - and with youth unemployment an issue across many SIDS, private sector growth, innovation and creative entrepreneurialism are reaching a level of critical importance.

Making SIDS open to the benefits of creative economies, powered by innovations in digital technology, can be the driver to broaden the economic base, raise educational aspirations and attainment and allow states to invest in social, economic and cultural development without the large volumes of external finance on non-concessional terms that is so vulnerable to external shock.

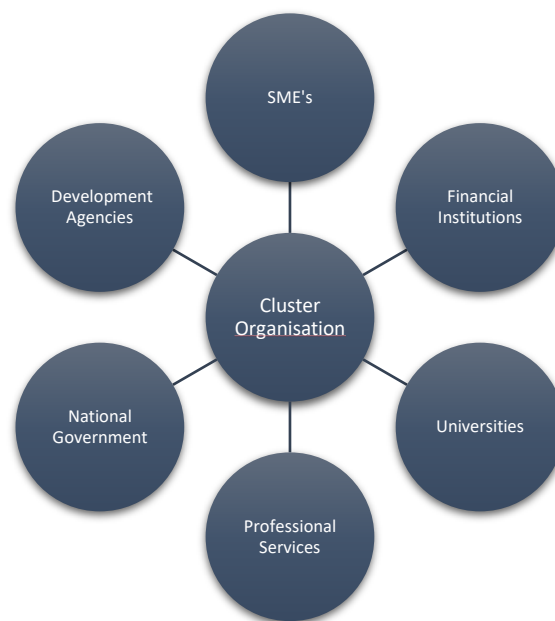
⁶ Song, H., & Lin, S. (2010). Impacts of the Financial and Economic Crisis on Tourism in Asia. *Journal of Travel Research*, 49(1), 16–30.

⁷ Scott, A. (2010). Creative cities: The role of culture. *Revue d'économie politique*, vol. 120(1), 181-204. doi:10.3917/redp.201.0181.

⁸ King D. (2014) Debt and Development in SIDS: Issues, Institutions, and Insights. In: Debt and Development in Small Island Developing States. Palgrave Macmillan, New York

However, international agencies, finance providers and major corporations need to recognise that the impact of 4IR on the creative industries means that the assumed importance of urban co-location no longer holds entirely true. The 5G trials and infrastructural developments happening now internationally have the ability to transform real-time collaboration, co-creation and creative content production. It's also the case that this technology is changing how we incubate, develop and manage creative clusters and ecosystems.

In these developing regions, creative clusters cannot develop and thrive organically as they do in large urban centres. For networks of collaboration and innovation to be successful in SIDS and other developing regions, clusters have to take on the role of orchestrator. Clusters can develop and nurture ecosystems of entrepreneurship, start-up, scale up and financial support. They can be the vital link between education, private sector, government and finance.



The evidence from the Platform moving image cluster in the UK⁹ shows that polycentric regions and peri-urban spaces can develop thriving and impactful digital-creative clusters if the right mechanisms and initiatives are put in place.

By using technology and a greater understanding of cluster ecosystems used in developing creative-digital economies, SIDS can ameliorate the negative impacts that geography, climate change, lack of natural resources and dispersed populations can have on innovation and entrepreneurialism.

⁹ www.platformstaffs.com

Digital artefacts, technology solutions and creative content have no need of localised natural resource and are not limited by the usual distributed routes to market. Digital exports can become a significant revenue earner for these small states if strategies and policies can be put in place to create the education, skills and ecosystems to allow them to flourish. Establishing strong, sector led and government supported creative clusters to act as orchestrators of these entrepreneurial ecosystems, advocates for their regions and partners in the implementation of policy and regulatory frameworks, has to be a priority if developing regions are to benefit from the opportunities of this new trade environment.

The rise of these digital exports could see the digital creative industries become the most important global sector for the 21st century and it's crucial to understand that the 4IR is not just about robots taking jobs, or AI helping us increase crop harvest. It's about fundamental shifts in what we think about manufacturing, trade and national economies. This then has significant impacts on how we think about the global creative economy as a whole, its inclusivity and its ability to offset some notable challenges.

The Changing Face of Export Led Growth

One of the most ubiquitous models of economic growth in developing regions has been the drive for exports. Often the growth of the export volume of a country is linked to economic growth indicators. To repeat the China model¹⁰ of development for instance, these countries have been actively pursuing export-driven growth, sometimes to the detriment of the long term development of a strong national economy. They have been focussing on large infrastructure projects and special economic zones to scale up their success, with inputs from all across the world being imported to those facilities. Finished products are then being shipped to virtually every corner of the world.

Technologies like job division and specialisation, telephone and internet, shipping and distribution have contributed to the establishment of sizeable manufacturing facilities in countries with a large pool of usually cheap labour. But in the age of the fourth industrial revolution, that global trade is changing. Developing countries in particular need to take into consideration the likely slowdown of export opportunity when designing their development model.

As I discussed above, if the mobilization of cheap labour, as the main competitive advantage of many developing countries to grow and accumulate capital is becoming less and less of an advantage, then governments need to refocus on building creative, digital and knowledge based economies that can sit alongside, support and enhance the traditional Blue economies.

So, this well tried and tested model of export-led growth could start to lose momentum, most importantly for the traditional growth model for uplifting developing countries. If this is the case then developing countries need to find other ways of growing, diversifying and making sustainable, their economies. And that is the key point. The traditional model is no longer suitable if we want to develop sustainable economies in developing countries and SIDS in particular. The rise of digital creative industries as a major economic force globally opens up the possibility to reshape that old model along entirely different lines.

¹⁰ Ling-yee, L. and Ogunmokun, G., 2015. Determinants of Export Performance: Research Evidence from Mainland China. In *Global Perspectives in Marketing for the 21st Century* (pp. 166-166). Springer, Cham.

These digital-creative industries are generating new opportunities for trade, growth and entrepreneurship, allowing creators to reach global audiences through platforms such as Amazon Appstore, Google Play, YouTube, Facebook, Patreon and Steam. Creative businesses and entrepreneurs are leading the way in digital innovation and utilising new technologies, from virtual and augmented reality to big data and cloud computing.

In the context of a highly globalised, accelerating technological landscape, it is important to recognise the increasing importance of these digital exports. The methods we currently use to trace trade flows are losing not just their relevance but crucially their ability to produce an accurate picture of trading realities. The way the market values companies and its products, as we have seen, clearly indicates just how dramatically that global trade is shifting.

This has particular importance for SIDS in that digital trade and exports presents an opportunity for economic growth without the usual limitations of geography or natural resources discussed previously. It also provides a sustainable, high skill and high wage growth strategy that can engage young people in ways that traditional industries in these regions have failed to do. It can also do something to halt the decline of island populations that we see across the globe.¹¹ This depopulation disproportionately targets the most skilled and most entrepreneurial elements of the younger workforce and as a result, skilled, creative and innovative talent becomes less and less impactful in these regions.

Without the development of entrepreneurial ecosystems, digital-creative education and support, young people will inevitably migrate to countries where aspirations are higher than the low skill and low wage service economy.

The creative 4IR presents an opportunity to realign these economies away from an over-reliance on these lower skill employments and offer young people the chance to develop careers and opportunities in the creative industries – a sector that is central to educational and economic aspiration and achievement. It also allows SIDS to be more attractive to inward investment and to retain more of the money that flows into the country through this trade.

For example, leakage, the process by which revenue flows out of the host country to pay for imported products and services, is higher in the Maldives than almost anywhere else.¹² The majority of resorts are owned by international brands and most of the food and drink consumed at these resorts is produced outside the country. More than 80 per cent of the indigenous workforce relies directly or indirectly on tourism. This financial dependence on a single industry leaves the Maldives vulnerable to changing holiday preferences, natural disasters and cancellations as a result of a terrorist attack. Salaries in the hospitality trade tend to be low; work is often seasonal, with limited adherence to international labour standards.¹³

¹¹ Petzold, J. and Magnan, A.K., 2019. Climate change: thinking small islands beyond Small Island Developing States (SIDS). *Climatic Change*, 152(1), pp.145-165.

¹² UNCTAD Trade and Development Board, second session. Geneva, 3 – 7 May 2010

¹³ Ghosh, R.N., Siddique, M.A.B. and Gabbay, R., 2017. International Tourism and Economic Development. In *Tourism and Economic Development* (pp. 19-29). Routledge.

The Fourth Industrial Revolution and the rise of the creative industries are however not something that is there to replace tourism, or the Blue Economy more widely. What they offer is the opportunity to develop broader economies and open up the development of digital-creative sectors that are powering global growth. They also enable the digital and creative transformation for these sectors, and indeed, for many other parts of society and economy, particularly healthcare, education and government. So perhaps we need to ally the Fourth Industrial Revolution to another that is now appearing over the horizon.

The Second Creative Revolution

Innovation is driven by creative entrepreneurialism – whether that is in immersive technology tourism, clean energy, healthcare or design. The ability of the digital-creative industries to engage young people in education and then offer them opportunities to build successful knowledge-based businesses means that the entrepreneurial, start-up and creative ecosystem grows and impacts across the whole of economy and society. The World Economic Forum recently produced a report entitled *The Future of Jobs*.¹⁴ In it, they concluded that the most important skills for the new landscape of the 4IR were Creativity, Critical Thinking and Complex Problem Solving.

Many technology leaders are now talking about the central role that Liberal Arts – and not necessarily STEM – graduates will have in the development, design and implementation of this new industrial and technological landscape.

This Creative Transformation of an economy – as a similar concept to Digital Transformation – is where the 4IR evolves into the Second Creative Revolution – or 2CR. You might also see this as something of a Second Renaissance.

Scholars have debated what the Renaissance was and when it began, most accepting that it began in Italy about 1300 and lasted for about three centuries. It is most often recognised as a creative revival, an outpouring of cultural and critical thinking, of artistic and literary accomplishment. This explosion of creative thinking however was also responsible for a hugely innovative period, with impacts across the whole of society.

The Renaissance led to the economy of western Europe changing from one based on barter to one based on money. Innovations and improvements in ship design and navigational instruments resulted in the expansion of seaborne trade. Industry, especially textiles, metals, and shipbuilding, also grew through innovations in materials and production methods.

Early forms of capitalism such as mass production and specialization emerged. To finance growing trade and industry, banking expanded. Towns expanded, bringing change to people in surrounding areas. The money economy led to the raising of cash crops on the manor and the payment of rent in money. Lines were blurred between classes as money replaced the medieval social system based on caste and service. Moreover, a new merchant class arose who generously supported Renaissance learning and art.

¹⁴ World Economic Forum, *Future of Jobs Report*, 2018

This explosion of innovation was born of the creative and critical thinking that characterised Renaissance Italy and then spread to the developing economies of Northern Europe, having an equally significant impact in those countries.

The parallels with today are striking but we have to emphasise the note of caution that I mentioned above in terms of the democratisation of this creative and technological explosion. The impending negative impacts of 4IR on developing countries is becoming clear, with increasingly uneven development a distinctly plausible scenario for strategic planners in global financial and non-governmental institutions.¹⁵

This is where the digital-creative industries will become the most important factor for these institutions in working to implement and achieve the UN's Sustainable Development Goals (SDG's) in SIDS regions. For SIDS, the fragility of their economies is where digital-creative economies can have their most significant impacts, enabling these countries and regions to become more active players in their own development.¹⁶

There has been, and continues to be, an externalisation to sustainable development in SIDS. It is something that is driven from the outside by the major global actors and institutions, a process that is based on the fact that these small states lack the fiscal, institutional and technical instruments to be able to drive their development from within.

The issues facing SIDS can certainly only be addressed through global partnerships and concerted and collaborative actions. However, SIDS themselves must be an active participant of that process. Collaborative action has to look at the internal, as well as external factors that SIDS economies, communities and governments are facing.

Little has been done to address internal infrastructural needs in any consistent or strategic way. Instead, funding and expertise has come from outside to deliver projects and interventions, and whilst invaluable, this process inevitably just perpetuates the notion that sustainable development is often something that is 'done to', rather than being 'done by' SIDS.

Why can climate, clean energy, healthcare or ocean innovations not be driven by the very states where they impact the most? If we want to see innovations in these sectors come from the people it impacts most, then we have to build strong creative economies in these regions, as the spill-overs from creative and collaborative innovation are substantial.

Whilst this is far from an easy fix, what the digital-creative industries can do is set the educational and innovation foundations that SIDS can use to build skills and talent – and then crucially retain that talent. They offer the most effective way of engaging an often disengaged youth whose lack of opportunity beyond the hospitality or public sectors leads to disaffection and social problems.

The Fourth Industrial Revolution and the Second Creative Revolution offer the opportunity to build an economy based on digital, creative, technological skills, innovation, entrepreneurialism and sustainable growth. We have to make sure that the challenges of achieving this in these small island states present do not become permanent barriers.

¹⁵ Herweijer, C., Combes, B., Johnson, L., McCargow, R., Bhardwaj, S., Jackson, B. and Ramchandani, P., 2018. *Enabling a sustainable Fourth Industrial Revolution: how G20 countries can create the conditions for emerging technologies to benefit people and the planet* (No. 2018-32). Economics Discussion Papers.

¹⁶ Roberts, J.L., 2018. Small island developing states and Sustainable Development Goals: curse or cure. In *Handbook of Small States* (pp. 517-529). Routledge.

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October 2019